DOCUMENT RESUME

ED 297 394 CS 506 292

AUTHOR Sherblom, John
TITLE Speech Accommodation and the Influence of Dyad Sexual Compositions.
PUB DATE Feb 88
NOTE 26p.; Paper presented at the Annual Meeting of the Western Speech Communication Association (San Diego, CA, February 20-23, 1988).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Communication Research; Females; Interpersonal Relationship; Males; *Sexual Identity; *Speech Communication; Stress Variables
IDENTIFIERS *Communication Behavior; *Speech Accommodation; Speech Rate

ABSTRACT

A study investigated the influence of conversational dyads' sexual composition upon the accommodation of speaking characteristics--turn duration, speaking rate, and vocal jitter. Subjects, 130 undergraduate students, were assigned to 65 dyads (with control for male-male, male-female, and female-female). In a sound studio, each participant in the pair recorded a sample sentence. The participants then read a description of a problem situation and discussed it for 15 minutes. After discussion, participants recorded the same sample sentence. A series of five measures, constructed from a chart produced by a psychological stress evaluator (PSE), indexed the accommodation process. Measures consisted of: (1) speaking rate; (2) utterance length; (3) vocal jitter count; (4) relative amplitude of jitter peaks; and (5) jitter amplitude during the first steady state portion of a word. Results indicated that the sex of the conversational speaker was not a consistently significant influence. Except in one case, the sex of the conversational partner was not significant when that partner was female. However, when the conversational partner was male, the dyad sexual composition results showed that the accommodation potential between the two conversationalists was a consistently significant predictor of the speaking rate, utterance length, and vocal jitter characteristics, once the speaker's own influence had been removed. (Two tables of data and 18 references are appended.) (MM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED297394

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
John Sherblom
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Speech Accommodation and the Influence of Dyad Sexual Compositions

John Sherblom
315 Stevens Hall
Speech Communication
University of Maine
Orono, Maine 04469
(207) 581-1940

Paper submitted to the
Language Behavior Interest Group of the
Western Speech Communication Association
1988 convention, February 20-23rd in San Diego, California.

CS506293

Speech Accommodation and the Influence of Dyad Sexual Compositions

Abstract

The present study examines accommodations in the speaking characteristics of speaking rate, turn duration, and vocal jitter, and the effects of dyad sexual composition upon them. Significantly convergent accommodation is found for each of the characteristics. The dyad sexual composition results suggest that the sex of the conversational speaker is not a consistently significant influence. Except in one case, neither is the sex of the conversational partner, significant, when that partner is female. But, when the conversational partner is male, the dyad sexual composition results show that the accommodation potential between the two conversationalists is a consistently significant predictor of the speaking rate, utterance length, and vocal jitter characteristics, once the speaker's own influence has been removed.

Speech Accommodation and the Influence of Dyad Sexual Compositions

Speech accommodation: the modification of one conversant's speaking characteristics in response to another's speaking characteristics, is an interesting phenomenon and one that has attracted sophisticated lines of research (for example the work done by Street, 1984; Street and Giles, 1982; and by Cappella 1984; Cappella and Planalp, 1981). The phenomenon of speech accommodation has been well documented. Cappella, for example, (1984, p. 248) reports the important conclusions of his research show that (a) individuals are consistent in their speaking characteristics within conversations; (b) individuals are consistent within themselves and different from each other; and notably (c) individuals change their speaking behaviors with new partners.

In general speech accommodation occurs as a convergence. Speech characteristics become more similar (Street, 1984). There are exceptions, however, and both Cappella (1983), and Street and Giles (1982) provide examples of divergent patterns of speech accommodation.

The influence of the sexual composition of the conversational dyad upon speech accommodation, either convergent or divergent accommodation, has not been fully addressed. Street (1984, p. 153) reports that the sexual composition of his interviewing dyads influenced the measured speech accommodation. In male-male interviewing

dyads both the interviewers and the interviewees converged significantly in turn duration. When the interviewer was male and the interviewee was female, however, their turn durations became significantly divergent in nature (Street, 1984, p. 153). While Street (1984, p. 153) does not offer a complete explanation of these trends he does suggest that the data indicate "the sexual composition of interview dyads may mediate [the] patterns of" turn duration convergence and divergence.

The purpose of the present paper is to examine further the influence of the sexual composition of conversational dyads upon the accommodation of speaking characteristics. Before that influence can be examined, however, the occurrence of accommodation in the present sample must be demonstrated and its direction, convergent or divergent, examined.

The present paper, then, is formed around the answers to the following three questions:

(1) Does a significant amount of speech accommodation occur?

(2) Does the accommodation, if occurring, represent greater similarity (convergence) or less similarity (divergence) of speech characteristics?

(3) What is the effect of the dyad sexual composition upon that accommodation?

The Measures

The speech characteristics cited most frequently as evidencing accommodation are the timing characteristics of vocal rate, or rhythm. The duration characteristics of vocalization, pause, and turn durations have also received attention.

Cappella and Planalp (1981) suggest that vocalization and pause durations as important. Pelrose (1982) suggests the importance of speech rhythm--the relationship of fluent to hesitant periods in speech. Street (1984) uses speech rate and turn duration in his research. Cappella (1984) describes pause and utterance length, turn duration, and vocal intensities, as salient.

Analysis of vocal jitter requires more specialized instrumentation than does the study of speaking rates and durations. It has not, therefore, received as much research attention. Vocal jitter has been examined by communication scholars, however. Hocking and Leathers (1980) investigated vocal nervousness as an indication of deception in interview situations. Wiegele (1978) analyzed the amount of vocal jitter present in public speeches as an index to the amount of psychological stress experienced during the speech. Leith and Timmons (1983) examined the differences in amounts of vocal jitter between stutterers and non-stutterers.

Vocal jitter will measured in the present study and analyzed for patterns indicative of accommodation. Speech

accommodation will also be indexed in Speaking Rate, and Utterance Length.

Speaking Rate accommodation examines how fast a communicator talks relative to a conversational partner's rate of speech. Speaking Rate is calculated as the number of words spoken divided by the amount of speaking time. The present measure is similar to Street and Brady's (1982) words-per-minute measure of speaking rate, except that the present measure removes the inter-word gaps from the calculation. It is, therefore, a measure of the rate at which words are spoken rather than of the rate at which an utterance is produced.

The second measure of speech accommodation is Utterance Length. Utterance Length is the total amount of time used in the production of an utterance. Utterance Length includes both the duration of the spoken words and any inter-word gaps in the utterance. Utterance Length is similar to Cappella's (1984) measures of utterance length, and turn duration.

Vocal jitter describes the minute fluctuations in the voice caused by microtremors occurring in the muscles of the vocal folds (Brenner, Branscomb, & Schwartz, 1979). These physiological tremors occurring at approximately 10 cycles per second are a normal accompaniment of the activities of voluntary muscles (Lippold, 1971). Both the muscles controlling the vocal folds and those of the formant producing cavities in the throat and nasal passages

experience these tremors causing inaudible shifts in the formant frequencies of the words produced (Lambert, 1974). In a normal, healthy, relaxed voice these vibrations occur at a frequency of approximately 8 to 14 cycles per second (Rontal, Rontal, Jacob, & Rolnick, 1983; Kenety, 1980). Stress causes the vocal fold and other speech related muscles to tighten up, resulting in a reduction in this vocal jitter.

Vocal Jitter is measured using a psychological stress evaluator (PSE) and a technique similar to Wiegele (1978), and Leith and Timmons (1983). Dektor Counterintelligence and Security manufactures the psychological stress evaluator that is designed to detect and chart microtremors of the voice and allows detailed analysis of them. These vocal perturbations can be quantified both in count and in amplitude.

Three measures of vocal jitter are performed in the present study. These are calculations of the vocal jitter count, or the amount of vocal jitter present in a word; the relative amplitude peak of that jitter; and the jitter amplitude during the first steady state portion of a word.

Jitter count is obtained by counting the number of jitter perturbations, or fluctuation peaks, in a word. This number is divided by the word duration to produce a calculation of the number of jitter cycles per unit of time.

The relative amplitude peak of jitter is measured as the distance from the baseline of the word to the top of the

jitter peak having the highest amplitude in each word. This provides a relative measure of jitter amplitude for a comparison of speakers recorded and analyzed under the same conditions.

The jitter amplitude steady state index is obtained by measuring the amplitude of one full cycle of a jitter waveform during the first steady state portion of a word. The steady state portion of a word normally occurs during the articulation of a vowel such as the "o" in "Joe." During this portion of the word the jitter amplitude remains relatively constant. As this portion makes up a large part of the word duration through time, the jitter amplitude steady state provides a good index of the word's jitter amplitude.

All three of these measures are made for the individual words and summed across all the words in an utterance to arrive at an index for the utterance. Vocal jitter is calculated as the sum of the standardized utterance scores for jitter count, relative amplitude of jitter peaks, and the jitter amplitude steady state measures.

Speaking Rate, Utterance Length, and the three measures of Vocal Jitter are examined before and after a conversation in relation to a conversational partner's comparable speech characteristic. A calculation of differences determines whether a participant's speech characteristic is more similar or dissimilar to a partner's pre-conversational characteristic at the end of a conversation than it was at

the beginning.

Method

Subjects

The 130 participants were undergraduate volunteers from an introductory Fundamentals of Interpersonal Communication course. Participation in the study fulfilled a research component of the course for which they received credit. Participants were blindly assigned to 65 dyads although the number of male-male, male-female, and female-female dyads was controlled for.

Procedure

Participants were escorted into a sound studio two at a time and seated on either side of a small table so that they were facing each other. On the table in front of each of them was a microphone equiped with a lavaliere, a set of instructions turned blank side up, and a pencil. On the end of the table was a single form identified as a microphone test. Participants were instructed in how to put the microphones on so that they were 5 to 6 inches from their mouths and left alone in the room. Participants were then asked to say the sentence, "Joe took father's shoe bench out." as a microphone test. Next participants read the description of a problem situation and discussed it for 15 minutes. When they had discussed the problem situation for fifteen minutes, the experimenter again asked participants to say the "Joe took father's shoe bench out." sentence as a final microphone test. When both participants had said the

sentence the second time, the experimenter returned to the room, and helped them remove the microphones.

Instrumentation

A series of five measures index the accommodation process as it occurs in speech. Speaking rate and utterance length are each measured. Vocal jitter is assessed through a set of three indices: jitter count, the relative amplitude of jitter peaks, and the jitter amplitude during the first steady state portion of a word. Each of the measures is made from a chart produced by a psychological stress evaluator (PSE).

The psychological stress evaluator is designed to filter an audio recording of a speech utterance, and produce a time-based chart of the vocal jitter within the utterance The vertical axis of this chart displays the relative amplitude of the vocal jitter in millimeters. The horizontal time-based axis plots the utterance at a speed of 50 millimeters per second. This allows for a detailed analysis of the vocal jitter within the utterance to be made.

Validity and Reliability of the PSE. The psychological stress evaluator has been shown to provide an accurate measure of stress (Wiegele, 1978; Kenety, 1980), although its ability to demonstrate deception has been questioned (Barland, 1975; Sackett & Decker, 1979). In addition to the studies in lie-detection reported by the manufacturer (Dektor Counterintelligence and Security Inc., 1970),

Brenner, Branscomb, and Schwartz (1979) report favorable instrument validation results from a number of non-lie-detection tasks. Kenety (1980) also reports results showing that the PSE can accurately indicate stress patterns. The evidence suggests that the PSE is a valid and reliable instrument for the present use of vocal quality analysis.

Data Collection

The vocal data to be analyzed with the PSE were collected before and after the conversation. High quality audio tape recordings were made at 19 centimeters per second. These recordings were analyzed with a psychological stress evaluator using a drive speed of 9.5 centimeters per second and a chart speed of 50 millimeters per second. This combination of record, drive, and chart speeds maximized the interpretability of the charts produced.

Analysis

Speaking rate is derived from a measure of word duration. Word duration is measured in millimeters along the horizontal time axis. Speaking rate is calculated by summing these word durations for the seven words in the "Joe took father's shoe bench out." utterance and dividing by the number of words. This measurement is converted from millimeters to time duration in seconds by multiplying the number of millimeters by twenty, and dividing by one thousand, as determined by the chart speed. It is then divided by two to compensate for the difference in tape recording and play back speeds.

Utterance length is derived from the measure of word duration and between word gap duration. The between word gaps are measured in millimeters and converted to time durations using the formula described above. Utterance length is calculated as the total of the seven word durations and the six between word gap durations.

Jitter count is calculated by counting the number of jitter peaks in a word and dividing that number by the word duration. This produces a jitter count per millimeter value for each word that is summed across the words to obtain a value for the utterance.

The relative amplitude peak of jitter is measured as the distance in millimeters from the baseline to the top of the jitter peak having the largest amplitude. This measure is taken for each word in the utterance and summed across all the words to obtain a single value for the utterance.

The jitter amplitude steady state is measured in millimeters as the distance between the maximum and minimum amplitude displacements in the jitter cycles. This measure is made for each word at the beginning of the first steady state portion of more than three jitter cycles. The obtained values are summed across all the words to obtain a value for the utterance.

The combined measure of vocal jitter is calculated as the sum of the standardized scores obtained for jitter count, relative amplitude peak, and jitter amplitude steady state. Each of these measures are converted to z scores by

subtracting the appropriate sample mean and dividing the result by the appropriate standard deviation (Hays, 1973). The three z scores are summed to provide an overall measure of vocal jitter.

To analyze a communicator's speech accommodation, his/her pre and post conversational scores are compared to the partner's pre-conversation score. This comparison takes the following form: Accommodation Score = (the absolute value of (the pre-test score minus a partner's pre-test score)) minus (the absolute value of (the post-test score minus a partner's pre-test score)). This formula derives an accommodation score from the difference in the participant's speech characteristics before and after the fifteen minute conversation with a partner. The first part of the formula, (the absolute value of (the pre-test score minus a partner's pre-test score)), describes how much a participant's speech characteristics differ from a partner's characteristics before they begin conversing. The second part of the formula, (the absolute value of (the post-test score minus a partner's pre-test score)), describes how much a participant's score differs from the partner's original characteristics after their conversation. By subtracting the second part of the formula from the first, an accommodation score is obtained that shows how much a participant has changed with regard to that partner. The larger the accommodation score the more a participant's speech characteristics have shifted toward a partner's

characteristics. A negative score shows a shift away from a partner's pre-test characteristics. Speech Accommodation scores are obtained for Speaking Rate, Utterance Length, and Vocal Jitter. To determine if a significant Speech Accommodation shift occurs, a test of the mean accommodation scores for each of these characteristics is performed.

The null hypothesis to be tested is that no accommodative shifts occur for Speaking Rate, Utterance Length, or Vocal Jitter (i.e. the mean accommodation score is not significantly different from zero.) To test this hypothesis the accommodation score means and standard errors of the mean are obtained and z scores produced.

To answer the question about the influence of the dyad sexual composition upon accommodation a multiple step regression analysis is performed. First, for each characteristic, a speaker's post-conversational score is predicted from the pre-conversational score. Next, a residual score is obtained by removing the predicted value from the actual post-conversational score. A potential accommodation score is calculated by obtaining the difference between the speaker's post-conversational score and the conversational partner's post-conversational score. Then the residual score is predicted from that potential score. The r square value obtained represents the variance accounted for in the residual score by the remaining accommodation potential between the speaker and conversational partner at the end of the conversation.

Results

(1) Does a significant amount of speech accommodation occur? (2) Is that accommodation convergent or divergent? To answer questions one and two z scores are obtained. A mean z score significantly different from zero indicates a significant amount of accommodation. A significantly positive score indicates convergent accommodation. A significantly negative score indicates divergence.

The z score results of these analyses are shown in Table 1. The speaking rate accommodation scores (mean = 1.69, standard error = .78, z = 2.17) produce a mean that is significantly different from zero. The positive value of the mean indicates a converging accommodation. The mean utterance length accommodation (mean = .22, standard error = .03, z = 6.40) and the mean vocal jitter accommodation (mean = 8.11, standard error = .37, z = 21.92) also differ significantly from zero, and show convergence. The results of these analyses demonstrate that a significant amount of convergent accommodation occurs in all three of the speaking characteristics: speaking rate, utterance length, and vocal jitter.

(3) What is the effect of the dyad sexual composition upon the accommodation of these three speaking characteristics? Table 2 shows the results of the multiple step regression analysis performed to answer this question.

Self Influence on Speaking Rate

The pre-conversation measure of speaking rate accounts for 11% of the post-conversation variance (r square = .11, n.s.) for the speakers in the male-male dyads, and 51% (r square = .51, $p < .0001$) of the variance for male speakers with female conversational partners. For female speakers 49% (r square = .49, $p < .0001$) of their post-conversational speaking rate is predictable from their pre-conversational rate when they are speaking to female partners. Only 23% (r square = .23, n.s.) of the female post-conversational variance can be accounted for by their pre-conversational characteristics when they are speaking with male partners.

Self Influence on Utterance Length

For male speakers 10% (r square = .10, n.s.) of their utterance length is attributable to their pre-conversational characteristic when they are talking to males and 14% (r square = .14, n.s.) when they are talking to females. For female speakers 16% (r square = .16, n.s.) is attributable to to their pre-conversational characteristic when they are speaking to a female partner and 52% (r square = .52, $p < .001$) when they are speaking to a male.

Self Influence on Vocal Jitter

For male speakers 32% (r square = .32, n.s.) of their post-conversational vocal jitter is predictable from their pre-conversational jitter when they are speaking to a male partner and only 6% (r square = .06, n.s.) when they are

speaking with a female partner. For female speakers 32% (r square = .32, $p < .001$) of the post-conversational vocal jitter is attributable to their pre-conversational jitter when conversing with a female partner and 65% (r square = .65, $p < .0001$) when they are conversing with a male partner.

These results point up the need to remove the influence of the enduring speaking habits of a speaker in order to examine the influence of the speaker's and conversational partner's gender upon the speaking characteristics and their accommodating tendancies. The enduring speaking habits appear to be more or less enduring and influential depending on the dyad gender composition itself. Once the pre-conversational self-influence is removed, the effect of the dyad sexual composition can be examined.

Influence of Dyad Sexual Composition on Speaking Rate

The difference in speaking rate of a male conversational partner predicts 42% (r square = .42, $p < .0001$) of the residual speaking rate of a male speaker and 83% (r square = .83, $p < .0001$) of the residual speaking rate of a female speaker. The difference in the speaking rate of a female conversational partner predicts 4% (r square = .04) of the speaking rate of a male speaker and 22% (r square = .22) of the speaking rate of a female speaker.

Influence of Dyad Sexual Composition on Utterance Length

The difference in the utterance length of a male conversational partner predicts 48% (r square = .48, $p <$

.0001) of the residual utterance length variance of male speakers and 46% (r square = .46, p < .0001) of the residual utterance length variance of female speakers. The difference in the utterance length of a female conversational partner predicts 16% (r square = .16, n.s.) of the residual variance for male speakers and 33% (r square = .33, p < .001) of the residual variance for female speakers.

Influence of Dyad Sexual Composition on Vocal Jitter

The difference in the vocal jitter of a male conversational partner predicts 40% (r square = .40, p < .001) of the residual vocal jitter variance for male speakers and 36% (r square = .36, p < .001) of the residual vocal jitter variance for male speakers. The difference in vocal jitter of a female conversational partner predicts 5% of the residual variance (r square = .05, n.s.) of male speakers and 16% (r square = .16, n.s.) of the residual variance of female speakers.

Discussion

The data reported in Table 2 show an expected set of significant results due to speaker self influence. For male speakers with female conversational partners a significant portion of the post-conversational speaking rate is predictable from pre-conversational speaking rate. For female speakers predicting the post-conversational characteristic from the pre-conversational accounts for a significant amount of variance in four cases. Significant

amounts of variance are accounted for in speaking rate and vocal jitter when the conversational partner is female, and in utterance length and vocal jitter when the conversational partner is male.

The Table 2 data also reveal an interesting set of significant influences due to the sex of the conversational partner. For male speakers residual variances are significantly predictable from the potential accommodation score of speaking rate, utterance length, and vocal jitter when the conversational partner is male. None of these are significantly predictable when the conversational partner is female. For female speakers the residual speaking rate variance is significantly predictable for both male and female conversational partners. Utterance length and vocal jitter residual variances are significantly predictable for female speakers only when the conversational partner is male.

The most consistent influence on these results appears to be the sex of the conversational partner. When the conversational partner is male the difference in speaking characteristics at the end of the conversation, or the accommodation potential, is a significantly strong predictor (r square = .36, .40, .42, .46, .48, and .83) of the residual variance in a speaker's characteristic. When the conversational partner is female, however, the accommodation potential score is almost never a strong predictor (r square = .04, .05, .16, .16, .22, and .33). In only one

case of the six (r square = .33) does a significant prediction occur.

These data suggest that the speaking characteristics of a conversational partner are taken into account and accommodated to by both male and female speakers when that conversational partner is male; but not necessarily when the conversational partner is female.

The effect of the dyad sexual composition upon the speaking characteristics appears a complex one. The sex of the speaker does not provide a consistently significant predictor of the speaking characteristics. When the conversational partner is female that predictability is rare. Only when the conversational partner is male, does a consistent predictability emerge.

The present results are intriguing, if disconcerting. They suggest that two bits of information are stored in the accommodation patterning of speech characteristics in the present sample of speakers. The first bit of information is a recognition of the sex of the conversational partner. The second is the male orientedness of that recognition.

The present results reveal a particular pattern of inter-speaker influence on speaking characteristics. If that pattern can be reproduced in other conversational samples, and verified for the population at large, it will prove a very interesting finding.

References

Barland, G. H. (1975). Detection of deception in criminal suspects: A field validation study (Doctoral dissertation, University of Utah, 1975). Dissertation Abstracts International, 3083-B.

Brenner, M., Branscomb, H. H., & Schwartz, G. E. (1979). Psychological stress evaluator--Two tests of a vocal measure. Psychophysiology, 16, 351-357.

Cappella, J. N. (1983). Conversational involvement: Approaching and avoiding others. In J. M. Wiemann & Harrison, R. P. (Eds.), Nonverbal Interaction. (pp. 113-148). Beverly Hills, CA: Sage.

Cappella, J. N. (1984). The relevance of the microstructure of interaction to relationship change. Journal of Social and Personal Relationships, 1, 239-264.

Cappella, J. N. & Planalp, S. (1981). Talk and silence sequences in informal conversations III: Interspeaker influence. Human Communication Research, 7, 117-132.

Dektor Counterintelligence and Security, Inc. Psychological Stress Evaluator. 5508 Port Royal Road, Springfield, VA 22151.

Hocking, J. E. & Leathers, D. (1980). Nonverbal indicators of deception: A new theoretical perspective. Communication Monographs, 47, 119-131.

Kenety, W. H. (1980). The psychological stress evaluator: A new concept in lie detection. Indiana Law Journal, 55, 349-374.

Lambert, R. W. (1974) The psychological stress evaluator: A recent development in lie detector technology. U. C. D. Law Review, 7, 332-350.

Leith, W. R. & Timmons, J. L. (1983). The use of the psychological stress evaluator with stutterers. Journal of Fluency Disorders, 8, 207-213.

Lippold, O. (1971). Physiological tremor. Scientific American, 224, 65-73.

Pelrose, G. C. (1982, November). Precision timing and turn taking in conversation: The functions of nonverbal cues, behavioral synchrony, and speech rhythm. Speech Communication Association Convention, Louisville, Kentucky.

Rontal, E., Rontal, M. Jacob, H. J., & Rolnick, M. I. (1983). Quantitative and objective evaluation of vocal cord function. Annals of Otology, Rhinology & Laryngology, 92, 421-423.

Sackett, P. R. & Decker, P. J. (1979). Detection of deception in the employment context: A review and critical analysis. Personnel Psychology, 32, 487-506.

Street, R. L. (1984). Speech convergence and speech evaluation in fact-finding interviews. Human Communication Research, 11, 139-169.

Street, R. L. & Brady, R. M. (1982). Evaluative domain, listener speech rate, and communication context. Communication Monographs, 49, 290-308.

Street, R. L. & Giles, H. (1983). Speech accommodation

theory: A social cognitive approach to language and speech behavior. In M. E. Roloff & C. R. Berger (Eds.), Social cognition and communication. (pp. 193-226). Beverly Hills, CA: Sage.

Wiegele, T. C. (1978). Physiologically-based content analysis: An application in political communication. In B. D. Rubin (Ed.) Communication Yearbook 2, New Brunswick, NJ: International Communication Association.

Table 1

Test of z scores to indicate significance and direction of accommodation in Speaking Rate, Utterance Length, and Vocal Jitter

	Mean	N	Standard Error	z
Speaking Rate	1.69	121	.78	2.17*
Utterance Length	.22	122	.03	6.40**
Vocal Jitter	8.11	122	.37	21.92**

* significant at .01

** significant at .001

r Square Results of Regression Analysis Procedures Examining the Influence of Dyad Sexual Composition on Accommodation in Speaking Rate, Utterance Length, and Vocal Jitter

Speaker:	Male				Female			
Partner:	Male (n=30)		Female (n=28)		Female (n=36)		Male (n=28)	
Predictor	(Pre)	Pot.	(Pre)	Pot.	(Pre)	Pot.	(Pre)	Pot.
Speaking Rate	(.11)	.42**	(.51)**	.04	(.49)**	.22	(.23)	.83**
Utterance Length	(.10)	.48**	(.14)	.16	(.16)	.33*	(.52)*	.46**
Vocal Jitter	(.32)	.40*	(.06)	.05	(.32)*	.16	(.65)**	.36*

* $p < .001$
** $p < .0001$

Predictors:

(Pre) is Speaker's Pre-Conversational Characteristic (step 1).
Pot. is Potential Accommodation (step 4).

Regression Analysis Procedure Steps:

1. Predict Speaker's Post-Conversational Characteristic from Speaker's Pre-Conversational Characteristic.

2. Calculate Residual as Post-Conversational minus Predicted Value.

3. Calculate Potential as Speaker Post-Conversational Characteristic minus Conversational Partner's Post-Conversational Characteristic.

4. Predict Residual from Potential.